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A new Structural Model for the Study of Adult Playfulness: Assessment and Exploration of an Understudied Individual Differences Variable

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Abstract

Adult playfulness is an understudied personality trait. A new 28-item questionnaire (the OLIW) is proposed that assesses four basic components; namely, Other-directed, Lighthearted, Intellectual, and Whimsical playfulness. Study 1 provides support for the proposed four factor-structure in both an Exploratory (N = 628) and a Confirmatory Factor Analysis (N = 1,168). Item- and scale-statistics are satisfactory (e.g., internal consistencies between .66 and .79 across the two samples). Correlations in the expected range with other playfulness questionnaires provide support for the convergent validity of the OLIW. The four scales are also associated with a preference for complexity in ratings for complex and simple figures. There was between 3 and 30% shared variance between the OLIW scales and the big five personality traits indicating an overlap, but no redundancies. Data from a third sample (N = 200) show that test-retest reliabilities were between .67 and .87 for one week, two weeks, one month, and a three month interval across the four scales (using a reduced set of 12 items only). Study 2 examines the convergence between self- and peer-reports and finds coefficients, in the expected range, between .44 and .57 for the homologues scales. Study 3 comprises N = 295 students who collected daily behavior ratings for fourteen days for Play, Aggression, Exhibitionism, and Impulsivity, and completed the OLIW at the beginning of the study along with other trait measures for the mentioned variables. The correlation coefficients among the trait measures provide further support for the convergent and discriminant validity of the OLIW. The OLIW demonstrated correlations between .29 and .36 for the aggregated behavior ratings, which was in the range of the other measures which entered the study. Again, the findings support the convergent and discriminant validity of the OLIW. Overall, the findings for the psychometrics, reliability (internal consistency, test-retest), and validity (factorial, convergent, discriminant) are satisfactory and further use of the scale in research on adult playfulness is encouraged.

Keywords: adult playfulness, Aggression, Exhibitionism, figure preference, humor, Impulsiveness, play, playfulness, test development, personality, positive psychology, peer-ratings

A new Structural Model for the Study of Adult Playfulness:

Assessment and Exploration of an Understudied Individual Differences Variable

Setting exceptions aside, the study of adult playfulness as a personality trait has not been in the main focus of interest in psychological research over the past decades. While this may have changed over the past years – perhaps due to the rise of positive psychology as a new direction in psychology (see e.g., Peterson and Seligman, 2004; Seligman and Csikszentmihalyi, 2000) and its emphasis on the study of characteristics that contribute to happiness, well-being, or flourishing – still only limited knowledge exists about the structure of this trait, its measurement, and correlates. It is evident that the study of play (the actual behavior) and playfulness (the personality trait) in infants and children has generated much more interest (see e.g., Bruner, 1972; Erikson, 1975; Lieberman, 1977; Piaget, 1932, 1945, 1957; Rubin et al., 1983 for an overview). The main aim of this set of studies is contributing to the literature on adult playfulness by addressing some particular understudied areas. In particular, we will test the convergence of self- and peer-ratings by varying the level of acquaintances (i.e., a mixed group of peers, partners in romantic relationships, and zero-acquaintance by using the LIWC methodology) and provide data on the overlap between trait measures of adult playfulness and daily ratings of playful behaviors (averaged across 14 days in dairy study). This will be based on a structural model that differentiates four different facets of playfulness and a new measure for which basic psychometric data will be reported here (including testing its localization in broader personality systems and test-retest reliabilities for first stability estimates).

As mentioned, most of the research on playfulness has been conducted with children, but there is literature supporting the notion that it may be of relevance for adults, too. For example, Lieberman (1977) posits that "[…] playfulness as a quality of play would developmentally transform itself into a personality trait of the player in adolescence and adulthood" (p. 23). Murray (1938) acknowledges the *Need for Play* as a basic human need; his definition is: "Play (Playful attitude). To

relax, amuse oneself, seek diversion and entertainment. To 'have *Fun*,' to play games. To laugh, joke and be merry. To avoid serious tension" (p. 83). Cattell (1945) lists playfulness in two nuclear clusters in his description of principal personality trait clusters (i.e., "austerity, thoughtfulness, stability" vs. "playfulness, changeability, foolishness;" L1: "amorousness, playfulness" vs. "propriety"). Goldberg and Rosolack (1994) identify a playfulness cluster (associated with *Extraversion*) and Goldberg (1990) lists playfulness as one example for *Spontaneity* as a category (*Extraversion*) in the Norman (1967 cited after Goldberg, 1990) taxonomy of trait descriptive adjectives (along with *impulsive*, *carefree*, and *zany*). Smith and Apter's (1975) *Reversal Theory* encompasses *telic* vs. *paratelic* states; the latter are characterized by playfulness. Peterson and Seligman (2004) see playfulness (used synonymously with humor) as a strength of character assigned to the virtue of *Transcendence* (i.e., using humor/playfulness to forge connections to the larger universe and provide meaning).

A major contribution to the field is Barnett's (2007) study involving focus groups of young adults to identify four basic components of playfulness (PF); namely, (1) *Gregarious* (cheerful, happy, friendly, outgoing, sociable); (2) *Uninhibited* (*Spontaneous*, impulsive, unpredictable, adventurous); (3) *Comedic* (clowns around, jokes/teases, funny, humorous); and (4) *Dynamic* (active, energetic). In later studies Barnett (2011; Magnuson and Barnett, 2013) and others (e.g., Proyer and Rodden, 2013; Qian and Yarnal, 2011) used the itemized adjectives as a questionnaire (*Playfulness Scale for Young Adults*; PSYA). However, specific characteristics of the scale have not yet been reported fully (e.g., item characteristics, convergent and discriminant validity) and one might argue that the items do not necessarily address the core of playfulness, but are built around adjectives that are associated with playfulness—or could be seen as consequences of being playful. Potential overlaps with other contents must be noted when, for example, studying PF in its relationship with subjective well-being (e.g., using 'being *happy*' as predictor and criterion in the same analysis). The

discriminant validity may be discussed given the large overlap of some scales with other variables (e.g., cheerfulness; see Proyer and Rodden 2013). Nevertheless, the scale was successfully used in earlier studies (e.g., Barnett, 2011; Magnuson and Barnett, 2013; Proyer and Rodden, 2013; Qian and Yarnal, 2011) and the four components reflect what has been uncovered as components of playfulness in student focus groups.

Glynn and Webster (1992) argue that play is the *opposite* of work—a view that is challenged in other work (e.g., Barnett, 2007; Csikszentmihalyi, 1975; Proyer, 2014b). They note: "[…] we conceptualize playfulness as a characteristic of the player and position the trait within a constellation of personality, demographic, and organizationally defined characteristics" (Glynn and Webster, 1992; p. 84; cf. Glynn and Webster, 1993). Glynn and Webster (1992) used pairs of adjectives from Osgood's (1962) semantic differential for the development of their scale that is based on a five factor-solution (i.e., *Spontaneous*, *Expressive*, *Fun*, *Creative*, and *Silly*). However, these data are difficult to interpret when studying individual differences variables and the article introducing their *Adult Playfulness Scale* leaves questions open (e.g., number of items; communalities cannot be computed from the data given; item statistics are missing; etc.). Despite its frequent use, the APS suffers from theoretical and methodological shortcomings.

Proyer (2012a, 2014a) found the best fit for a five-factor solution in linguistic corpus analyses of the German language revealing implicit linguistic and psychological theories on playfulness; namely, (a) *Cheerful-engaged*; (b) *Whimsical*; (c) *Creative-loving*; (d) *Intellectual*; and (e) *Impulsive*. Proyer and Jehle (2013) subjected seventeen playfulness questionnaires to a joint factor analysis and found the best fit for a five-factor solution; namely, (a) *Humorousness*; (b) *Cheerfulness–Uninhibitedness*; (c) *Expressiveness*; (d) *Other-directedness*; and (e) *Intellectuality–Creativity*. Analyses revealed that the Cheerfulness–*Uninhibitedness*-factor (*Extraversion*, *Emotional Stability*) and the *Expressiveness*-factor (*Extraversion*) demonstrated strong overlap with broader

personality traits—explaining 73%(!) and 47% of the variance. The authors concluded that these factors do not define playfulness in its *narrow* sense, but traits that are associated with playfulness. Hence, there might be a bias of existing playfulness measures toward *Extraversion* and *Emotional Stability*. Factor I (*Humorousness*) points at the missing differentiation between playfulness and humor in the literature (see Proyer and Ruch, 2011). Items such as "*I have a good sense of humor*" or "*I laugh a lot*" are frequently used for the assessment of *playfulness* (about one fifth of the items in Proyer and Jehle, 2013) and make it difficult to test specific predictions for either humor or playfulness. While humor scholars like McGhee (1996) argue that humor is a specific variant of play (the play with ideas), it seems evident that there is an overlap without them being identical (people can be playful without being humorous; see Proyer, 2016).

Based on a thorough literature review and combining different approaches in the study of adult playfulness (e.g., psychometric approaches, factor-analytically derived models, qualitative analyses, etc.), the author (Proyer, 2015) has proposed a new structural model of playfulness that consists of four facets; namely, (a) *Other-directed*; (b) *Lighthearted*; (c) *Intellectual*, and (d) *Whimsical*. In this model, the *Other-directed* and *Intellectual* components were directly derived from Proyer and Jehle's (2013) factor-analytic study. It has already been argued (e.g., Proyer, 2012a, 2014a; Proyer and Jehle, 2013) that the "humorous component" of playfulness should rather be seen as the liking of unusual and odd objects and persons, or finding amusement in everyday kinds of situations. Hence, being humorous, having a good sense of humor, liking to laugh, or laughing a lot and so forth may be associated with this playful variant, but all of this could also be done without being playful. *Whimsical* playfulness must not necessarily lead to or elicit humor and/or laughter—it describes a *playful* way of dealing with everyday situations, interests, or activities that playful people pursue. Proyer and Ruch's (2011) assertion that humor and playfulness should be seen as overlapping

without being identical may describe the association for *Whimsical* playfulness and humor best (cf. Proyer, 2016).

A *Lighthearted* facet emerged in one of the lexical studies (Proyer, 2012a) covering contents such as being careless, not ruminating, and not being strict, or exact. It is apparent that this is similar to conceptualizations of playfulness with spontaneous, uninhibited, or unpredictable facets. Pursuing *Lighthearted* PF is associated with not worrying too much about the consequences of playful behaviors—even if they may be *risky*, in the sense of potentially not being fully appreciated by social interaction partners, or may lead to difficulties in given situations (e.g., when having to improvise to cover deficits in the preparation of materials, or risking a comment that could be misunderstood in nonplayful settings). The four facets could be described as follows:

(a) *Other-directed* (OTD) PF is marked by the enjoyment of playing with others; using ones PF to make social relations more interesting; using ones PF to loosen up tense situations with others; enjoying good-heartedly teasing friends and one's romantic partner; and other forms of playful interactions with others.

(b) *Lighthearted* (LTH) PF means seeing life as a game and not worrying too much about future consequences of one's own behavior; liking to improvise; reserving time in the daily routine for play; and seeing life more as a comedy than a tragedy.

(c) *Intellectual* (INT) PF is characterized by cognitive components such as liking to play with ideas and thoughts; liking to think about and solving problems; liking to think about and trying different solutions for a problem; preferring complexity over simplicity; and by being playful with words (eloquent) and liking plays on words.

(d) *Whimsical* (WHI) playfulness is characterized by being able to find something amusing in grotesque and strange situations; having the reputation of liking odd things or activities; finding it easy to find something amusing for oneself and/or others in everyday life situations and interactions.

Based on these four components and on earlier approaches (including, e.g., Barnett's [2011] notion that "People who are playful are able to transform almost any situation into one that is amusing and entertaining by cognitively and imaginatively manipulating it in their mind;" p. 169), Proyer (2015) proposes a revised definition of playfulness as a personality trait in adults:

> Playfulness is an individual differences variable that allows people to frame or reframe everyday situations in a way such that they experience them as entertaining, and/or intellectually stimulating, and/or personally interesting. Those on the high end of this dimension seek and establish situations in which they can interact playfully with others (e.g., playful teasing, shared play activities) and they are capable of using their playfulness even under difficult situations to resolve tension (e.g., in social interactions, or in work-type settings). Playfulness is also associated with a preference for complexity rather than simplicity and a preference for—and liking of—unusual activities, objects and topics, or individuals (Proyer, 2015; p. 93-94).

1.1. Study 1

Study 1 describes the development of the OLIW, a questionnaire for the assessment of the four facets of playfulness, as the basis for the further studies. Factorial validity was established in two independently collected samples by means of Exploratory and Confirmatory Factor Analyses. Participants completed (a) three other measures for playfulness; (b) a measure for the big five personality traits; and (c) ratings on the liking and disliking of selected complex and simple figures from the *Welsh Figure Preference Test* (Welsh, 1959). Playfulness is associated with *Extraversion*, *Culture*, *Emotional Stability*, but low *Conscientiousness* (Proyer, 2012bc). The multiple squared correlation coefficient between a one-dimensional measure of playfulness and the big five personality traits was $R^2 = .46$ (Proyer 2012c). This shows a substantial overlap, but also that the five broad personality traits cannot fully account for playfulness (cf. Barnett, 2011). It was expected that the

described relations could be replicated, but that there would be differences among the facets. For example, *Other-directed* PF requires interaction with other people. Hence, greater levels of *Extraversion* and *Agreeableness* may be expected, while the *Intellectual* facet was expected to have greater overlap with *Culture*.

The participants in Study 1 rated selected simple and complex figures of the *Welsh Figure Preference Test* (Welsh, 1959). Proyer (2012b) has shown that those higher in playfulness favored more complex pieces of art (surrealistic paintings) over simple art pieces (e.g., a geometric figures). They expressed greater liking and lower aversion of the surrealistic painting in comparison to those lower in playfulness. Interestingly, the ratings for the simple figures did not differ from those low and high in playfulness. It was expected that there would be a positive relationship of all OLIW scales with the preference and lower disapproval of complex figures.

2. Materials and methods

2.1. Participants

Sample 1 (Construction Sample) consisted of $N = 628$ adults ($n = 204$ men, $n = 422$ women; two participants did not indicate their gender) between 18 and 78 years ($M = 36.3$, $SD = 14.9$). Of these, 11.6% had a completed vocational training, 38.9% had a diploma qualifying them to attend a university, 42.2% held a university degree, and an additional 4.8% held a doctoral degree (others had lower educational status or did not provide information). Most were German (47.0%), Swiss (21.5%), or Austrian (28.2%). More than a third (39.6%) were single, 27.8% were in a long-term relationship, 24.4% were married, 1.4% were widowed, and 5.9% were divorced or lived separated from their partner (others did not provide the information).

Sample 2 (Replication Sample) consisted of $N = 1{,}168$ adults ($n = 341$ men, $n = 827$ women) aged between 18 and 79 ($M = 40.0$, $SD = 12.04$). Of these, 40.3% had never been married, 45.5% were married, 1.2% were widowed, and 12.9% were divorced. They were highly educated, 59.8%

held a degree from university, 21.5% have completed compulsory education, 7.0% have completed an apprenticeship, and 0.7% had less than compulsory education (others provided no information).

Sample 3 (*Test Retest Correlation Sample*) consisted of 200 adults (35 men and 165 women) between 19 and 84 years ($M = 44.2$, $SD = 13.1$). About one fifth (22.0%) were single, 43.0% were married or in a registered partnership, 22.5% were in a relationship, but not married (others were divorced, lived separated, or were widowed). In total, 45.5% held a degree from a university and an additional 18.0% from a college of applied sciences, 19.5% had a diploma that would qualify them to attend a university, and others had completed vocational training, or completed basic schooling.

2.2. Instruments

The *OLIW* was developed in this set of studies. First, fifty-eight items were written based on the definitions of the four facets. The first author and a group of research assistants generated the items. The full set of items was administered to the participants of Sample 1 using a 7-point answer format (1 = "*strongly disagree*," 7 = "*strongly agree*") and the reduced set of the best suiting items to Sample 2.

The *Short Measure of Adult Playfulness* (SMAP; Proyer, 2012b) assesses an easy onset and high intensity of playful experiences along with the frequent display of playful activities with five items (e.g., "I am a playful person") using a 7-point scale (1 = "*strongly disagree*," 7 = "*strongly agree*"). There is support for the proposed unidimensionality and high internal consistencies (≥ .80; Proyer, 2012b; $\alpha = .88$, this sample). Convergent and discriminant validity are well supported (e.g., Proyer, 2012c, 2014c; Proyer and Rodden, 2013; Proyer and Ruch, 2011; Proyer and Wagner, 2015; Ruch and Heintz, 2015).

The *Adult Playfulness Scale* (APS; Glynn and Webster, 1992) is a list of 32 adjectives; of these 25 were scored. Its subscales are *Spontaneous* (e.g., Spontaneous vs. disciplined; 7-point scale; $\alpha = .76$, this study), *Expressive* (e.g., bouncy vs. staid; $\alpha = .72$), *Fun* (e.g., bright vs. dull; $\alpha = .72$),

Creative (e.g., imaginative vs. unimaginative; $\alpha = .72$), and *Silly* (e.g., childlike vs. mature; $\alpha = .70$). Glynn and Webster report satisfactory reliabilities and data on convergent and predictive validity. As in earlier studies (Proyer, 2011, 2012bc; Proyer and Ruch, 2011), the German version of the instrument was used.

Barnett's (2007) *Playfulness Scale for Young Adults* (PSYA) was developed based on adjectives identified in focus groups of young adults as being indicative characteristics of playful people. For this study, the adjectives were transformed into items (e.g., "active" into "I am an active person"; 1 = "*strongly disagree*," 4 = "*strongly agree*"). The PSYA consists of four subscales; namely, *Gregarious* ($\alpha = .72$, this sample), *Uninhibited* ($\alpha = .71$), *Comedic* ($\alpha = .75$), and *Dynamic* ($\alpha = .71$). The PSYA has already been used widely in research (e.g., Barnett, 2011; Proyer and Rodden, 2013; Quian and Yarnal, 2011).

The *Inventory of Minimal Redundant Scales* (MRS-25; Ostendorf, 1990) is a bipolar list of 25 pairs of adjectives for the subjective assessment of the big five personality traits. It uses a 6-point scale ("*very*"–"*quite*"–"*rather*" for each pole), has good psychometric properties, and is frequently used in the German language area. Internal consistencies in this study were $\alpha = .86$ (*Agreeableness*), $\alpha = .76$ (*Conscientiousness*), $\alpha = .88$ (*Emotional Stability*), $\alpha = .83$ (*Extraversion*), and $\alpha = .78$ (*Culture*).

Participants rated five simple (number: 54, 57, 171, 287, and 382) and five complex (number: 17, 55, 99, 242, and 358) figures from the *Welsh-Figure-Preference Test* (WFPT; Welsh, 1959) that were presented in a random order. The author and a team of student helpers selected the pictures to reflect comparable distributions in the two conditions. For each figure, participants rated their *liking* and their *disapproval* on a 10-point scale (1 = "*not at all*", 10 = "*absolutely*"). The alpha-coefficient for the liking/disapproval of the five complex figures was .57/.69 and 74/.84 for the simple figures.

2.3. Procedure

Participants in *Sample 1* were recruited via leaflets and mailing-lists for an online study (using SurveyMonkey) on humor, playfulness, and personality (they had to be ≥ 18 years of age). They received individualized feedback on their test-results upon request. Participants were not paid for their services. All playfulness items that were initially developed were given first after completion of basic demographic information followed by the *SMAP*, *PSYA*, *APS*, *MRS-25*, and the selected figures of the *WFPT*.

Participants in *Sample 2* completed the 28-item OLIW derived in Sample 1 on a website that offers free online assessments related to positive psychology (www.charakterstaerken.org). Upon logging on to the website, the participants get an overview of available measures and complete instruments according to their liking on the website. The website is hosted by the University of Zurich (UZH, Switzerland). Participants receive immediate feedback on their test results after completion of the questionnaire. Data were collected for a time-span of about six months.

Data for *Sample 3* were collected using participants from a positive psychology intervention online program (www.staerkentraining.ch) that was run by the author at the UZH. The program was free of charge. The participants completed positive psychology activities and received an individualized feedback at the end of the program. They completed 12 items of the OLIW at baseline, after completion of the activity (post measure), after two weeks, one month, and after three months. The author selected the three items with the highest corrected item-total correlations for each of the four OLIW-dimensions; time constraints did not allow administering the full OLIW.

Studies 1 to 3 were carried out in accordance with the recommendations of the ethics committee of the psychology department at the UZH. All participants completed the measures voluntarily, received information on the nature of the study, and received feedback on their test results.

2.4. Data analysis

A Principal Component Analysis was conducted for the data collected in Sample 1 (SPSS-Statistics-22; Mplus 6.11; Muthén and Muthén, 2007) then analyzed in a Confirmatory Factor Analysis (Mplus 6.11) with the weighted least squares estimator (WLSMV) in Sample 2. Data on the convergent and discriminant validity were analyzed by means of correlation and regression analyses. Additionally, item- and scale-statistics were computed.

3. Results

3.1. Factorial validity: Principal Component Analysis (PCA; Sample 1)

The 58 items developed for the assessment of the four facets of playfulness were subjected to a Principal Component Analysis (PCA). The best suited items were identified based on (a) high loadings on the intended factor (≥.40); (b) low secondary loadings on other factors (a difference ≥.20 between the highest and second highest loading; loadings <.30 on the other factors); (c) enablement of high corrected item-total correlations; and (d) avoidance of overlap in the content. The twenty-eight items that fit these criteria best were subjected to a PCA. Seven factors exceeded unity (eigenvalues = 5.96, 2.28, 1.93, 1.57, 1.29, 1.17, and 1.11). The scree test and a parallel analysis (Horn, 1965) supported the extraction of four factors (eigenvalues: 1.54, 1.46, 1.40, 1.35, 1.31, 1.26, and 1.22). Data were rotated to the Oblimin-criterion (delta = 0; the pattern matrix is given in Table 1). The table also contains the abbreviated item contents (for the full questionnaire see the Online Supplementary Material).

Loadings on the factor labeled *Intellectual* playfulness (PF) ranged between .43–.63 (median = .51) and the absolute difference between the highest and second highest loadings ranged between .26–.63 (median = .31). The median of the loadings on the *Lighthearted* factor (median = .67; range between .55–.69) was numerically higher than the one for *Intellectual* PF. The absolute differences between the highest and second highest loadings indicated a clear pattern and were between .55–.69 (median = .46). The item-loadings assigned to *Other-directed* playfulness ranged between .39–.69

(median = .57); the absolute differences between the highest and second highest loading were between .28–.52 (median = .47). Finally, loadings on the *Whimsical* factor ranged between .42–.79 (median = .64) and the absolute difference between the highest and second highest loading ranged between .37–.71 (median = .52). The intercorrelation of the factor scores was between .14 (*Whimsical–.Other-directed*) and .25 (*Intellectual–Whimsical*). Hence, the four factors showed the expected positive relationship, but were not redundant.

3.2. Factorial validity: Confirmatory factor analysis (CFA; Sample 2)

For an independent verification of the proposed solution, a confirmatory factor analysis allowing factors to correlate using a robust weighted least squares estimator (WLSMV) was computed. Model fit was tested in terms of the *comparative fit index* (CFI; coefficients larger than .90 indicate an acceptable fit; e.g., Hu and Bentler, 1998), the *root mean square error of approximation* (RMSEA; coefficients smaller than .08 indicate an acceptable fit), and the *standard root mean square residual* (SRMR; coefficients smaller than .10 indicate an acceptable fit). Additionally, the χ^2-value was computed, but it was not further considered, given its dependency on the sample size. Fifty-eight participants had to be excluded for the analyses, because they had incomplete data sets.

The analysis revealed a CFI of .89, a RMSEA score of .066 (95% CI: .063-.069), and an SRMR of .056; $\chi^2 = 15605.63$ ($df = 378$, $p<.001$). Overall, the RMSEA and the SRMR indicated model fit, while the cut-off score for the CFI was not met by a small deviation. Taken together the coefficients seem acceptable for continuing to work with the scale.

3.3. Scale statistics (Samples 1 and 2)

Table 2 provides an overview on the scale statistics along with an analysis of the association with age and gender in the two samples.

Table 2

Table 2 shows that the reliabilities yielded a median of .75 across both samples. All scores were normally distributed and there were minor associations between younger age and *Other-directed* playfulness (PF; 4-5% shared variance) and greater *Intellectual* PF and higher age (1-11% shared variance across the two samples); other relations with demographics were negligible. The intercorrelations among the four scales were between .23/.31 (*Whimsical–Other-directed*) and .43/.45 (*Lighthearted–Intellectual*/*Whimsical–Intellectual*) in Samples 1/2 (all $p<.01$).

3.4. Convergent and discriminant validity (Sample 1)

Although, age and gender only had minor effects on the scores in the OLIW, partial correlations were computed controlling for potential effects when testing the overlap of the OLIW with three playfulness scales (Table 3).

Table 3

The correlation analyses support the convergent validity of the OLIW; numerically strongest overlap was found for the SMAP (especially, *Other-directed* PF). Similar correlation coefficients were found between the PSYA and the OLIW; with the exception of *Gregarious* playfulness (PF) in the PSYA and *Whimsical* PF in the OLIW (also comparatively low coefficients were found between *Dynamic* and *Whimsical* PF). The numerically largest coefficient was found between *Comedic* PF (PSYA) and *Other-directed* PF in the OLIW. Finally, there were also positive associations between the APS and the facets of the OLIW. The numerically largest coefficient was found between *Spontaneous* PF (APS) and *Lighthearted* PF. The localization of the OLIW scales in the big five personality traits was tested next (Table 4).

Table 4

There was 3-30% shared variance between the big five and the OLIW; numerically strongest for *Extraversion* and *Other-directed* PF. In line with expectations, *Conscientiousness* was robustly negatively associated with *Lighthearted* PF. *Emotional Stability* was mainly associated with

Intellectual and *Lighthearted* PF, while *Culture* was positively associated with all facets of the OLIW—numerically strongest with *Whimsical* PF.

A set of regression analyses was computed for testing the overlap of the big five personality traits (predictors, Step 2, stepwise; Step 1 = age, gender, enter) separately with each of the four scales (i.e., criteria). There was a multiple squared correlation coefficient of .24 ($F[4, 466] = 38.33$, $p<.001$) for the prediction of *Other-directed* PF (5% accounted for by Step 1). In the final model, *Extraversion* ($\beta = .36$; $\Delta R^2 = .17$) was the best predictor followed by *Culture* ($\beta = .20$; $\Delta R^2 = .04$) and younger age ($\beta = -.20$, all $p<.001$). The R^2-coefficient for *Lighthearted* PF was .37 ($F[6, 466] = 46.39$, $p<.001$; ΔR^2 for Step 1 = .03). The strongest predictor was low *Conscientiousness* ($\beta = -.42$; $\Delta R^2 = .16$), followed by *Emotional Stability* ($\beta = .32$; $\Delta R^2 = .13$), and *Culture* ($\beta = .21$; $\Delta R^2 = .05$), *Extraversion* ($\beta = .09$; $\Delta R^2 = .007$), and higher age ($\beta = .13$; all $p<.001$). There was an $R^2 = .34$ ($F[5, 466] = 46.59$, $p<.001$) for the prediction of *Intellectual* PF. Of these about 12% were accounted for by demographics (Step 1; higher age, $\beta = .31$ in the final model); of the big five personality traits, *Culture* ($\beta = .36$; $\Delta R^2 = .15$) as well as *Emotional Stability* ($\beta = .25$, all $p<.001$; $\Delta R^2 = .06$) and lower *Conscientiousness* ($\beta = -.09$, $p = .018$; $\Delta R^2 = .008$) were predictive. Finally, there was an $R^2 = .30$ ($F[5, 466] = 29.98$, $p<.001$) for the prediction of *Whimsical* PF (of these .026 were accounted for by demographics in Step 1); *Culture* ($\beta = .51$; $\Delta R^2 = .24$) was the best predictor, followed by lower *Conscientiousness* ($\beta = -.16$; $\Delta R^2 = .03$), and lower *Agreeableness* ($\beta = -.13$, all $p<.01$; $\Delta R^2 = .02$).

The SMAP demonstrated robust associations with *Extraversion* (5% shared variance) and *Culture* (17%). The multiple squared correlation coefficients for all facets of the APS and the big five yielded an overlap between 17% (*Agreeableness*) and 55% (*Culture*). The correlation coefficient between *Creative* PF and *Culture* (55%) raised questions as to their redundancy. The multiple squared correlation coefficients between the four PSYA scales and the big five ranged between 14%

(*Agreeableness*) and 54% (*Extraversion*) overlapping variance. The associations of playfulness with the liking and disliking of simple/complex figures was tested next (Table 5).

Table 5

All OLIW-facets were associated with a greater liking for and lower disliking of complex figures (numerically strongest for *Intellectual* PF). About 8% in the liking/low disliking of complex materials was accounted for by the four OLIW-facets (only about 1% for the simple figures). Findings were highly similar for the SMAP. For the APS, primarily *Creative* PF yielded the expected associations, while other correlation coefficients were numerically lower. The overlap of the five APS-facets for the complex figures (3%-5%) was numerically lower than what has been found for the OLIW; while coefficients for the simple figures were comparable (1%-2%). Finally, for the PSYA there were widely negligible associations, numerically strongest for *Gregarious* PF; there was only low overlap (1%-2% across the four analyses).

3.5. Test-retest reliabilities (Sample 3)

Participants in Sample 3 completed a reduced set of twelve items (three per scale) from the OLIW at four occasions for an initial test of the test-retest reliabilities. The alpha-coefficients were high for three out of the four scales (except *Other-directed* PF) and the test-retest correlations were ≥ .67 across three months.

Table 6

4. Discussion

The main aim of Study 1 was to test a new subjective measure for *Other-directed*, *Lighthearted*, *Intellectual*, and *Whimsical* playfulness (*OLIW*, 28 items) as the basis for further studies on the nature of adult playfulness. Data from three samples support the factorial validity and

demonstrate satisfactory internal consistencies and test retest-reliabilities (preliminary data). Whereas gender was largely independent of the OLIW, *Intellectual* PF increased with age, while *Other-directed* PF trended to decrease with age—the associations were, however, low in size. Overall, the findings support the notion that age and gender do not strongly contribute to the expression of PF as measured with the OLIW (cf. Proyer, 2014c). Overall, the item- and scale-statistics were encouraging and the psychometric properties of the OLIW are satisfactory for future research purposes.

The OLIW has been developed for the differentiation of four facets of adult playfulness. If researchers are interested in assessing global playfulness only it is recommended to use other measures (e.g., the *Short Measure of Adult Playfulness*; Proyer, 2012b) that have been specifically designed for this purpose. An advantage of the OLIW over the SMAP and comparable instruments is that the single facets are expected to predict specific behaviors better than the more global assessment.

Convergent validity was demonstrated by good convergence with three playfulness questionnaires (Barnett, 2007; Glynn and Webster, 1992; Proyer, 2012b). The four OLIW facets could be well located in the broader framework of the big five personality traits (3-30% overlapping variance). Of course, PF does not exist independently from these broader traits, but the overlap is far from redundancy. All facets were associated with *Extraversion* and there was no association with *Agreeableness*. The pattern of correlations differed for the single facets (e.g., *Intellectual* PF was also characterized by *Emotional Stability*). One of the aims in the development of the OLIW was the reduction of the overlap with broader personality traits (see Proyer and Jehle, 2013). Data from Study 1 suggests that this aim has been achieved and that the overlap is lower in the OLIW than in the other measures used.

Playfulness as measured with the OLIW is associated with a preference for complexity, rather than simplicity (strongest for *Intellectual* PF). This is in line with expectations since this facet reflects

a liking for problem solving (e.g., mentally playing with ideas and comparing different solutions for a problem) and *Intellectual*ly challenging tasks. Earlier research has already shown that greater PF was associated with a greater liking and lower disliking for abstract art (akin to higher complexity; Proyer, 2012b).

Limitations. Most of the data collected were self-report in nature and, thus, findings may be affected by a joint method-bias. Study 1 has addressed some aspects of validity and reliability only, while others are still open (e.g., using a MTMM-approach). In particular, the relationships among similar constructs such as curiosity, spontaneity, or humor need more elaborate testing. The test retest-reliability has only been tested for 12 selected items of the OLIW and, thus, findings are preliminary. Finally, there are also other instruments in the field, which have not yet been tested in their relationship with the OLIW (e.g., Shen et al., 2014). The male : female ratio is not balanced in all samples and limit the generalizability of the findings.

5. Study 2

5.1. Introduction

Study 2 compared self-ratings of the OLIW and the SMAP (Proyer, 2012) with ratings from knowledgeable others. This allowed distinguishing between the intended *trait* variance and the unwanted *method* variance (Campell and Fiske, 1959). Further, it was tested whether the level of agreement for the OLIW is in the range reported for other personality traits. Agreement for the big five personality traits typically ranges between .46 (*Agreeableness*) and .62 (*Extraversion*; Connolly, Kavanagh and Viswesvaran, 2007). To the best of the knowledge of the author there are no data on the self and peer convergence in playfulness with the exception of the *Need for Play*-scale of the *Personality Research Form* (PRF; Jackson, 1984)[1]. Ostendorf and colleagues (1986) report

[1] The *Values-in-Action Inventory of Strengths* (VIA-IS) contains a humor scale and the authors use *playfulness* synonymously with humor (Peterson and Seligman, 2004). Ruch and colleagues (2010) found a convergence of .44 ($p < .001$; $N = 766$) between self- and peer-ratings and a similar convergence was found between adolescents and their parents ($r = .39$; $N = 219$; Ruch et al. 2014).

coefficients between .40 and .75 (mean = .63) across five samples with six peer-ratings for the German PRF (Stumpf et al., 1985). They report analyses for three (mean = .57) peer-ratings and one rating (mean = .44) with findings in the same direction. Using a single item rating for the peer ratings, Fekken and colleagues (1987) found a convergence of .22. These findings are roughly in the range that could be expected for this study (taken the lower reliability of single item ratings into account).

6. Materials and methods

6.1. Participants

Overall, 235 dyads of target persons and peer-raters participated in the study; nine had to be excluded because of irregular answer patterns either on the side of the self- or the peer-raters (e.g., providing the same rating for all items; or having a pattern such as answering with option 1 first, than 2, 3, 4 up to 7 and then starting from 1 again and so forth). The 226 participants in the final self-rating sample (*Sample 1*; 53 men, 173 women) had a mean age of 33.9 years (*SD* = 14.5; 18-73 years). Of these, 49.1% held an academic degree, 23.9 a diploma qualifying them to attend a university, and 24.3% had a completed vocational training; others had basic school years only (2.7%). More than half (61.2%) were married, 22.4% were in a relationship, but not married, 13.4% were single, and 3.0% were divorced.

The mean age of the peer raters (99 men, 124 women; three did not indicate their gender; *Sample 2*) was 36.2 (SD = 14.8; 16 to 38 years; 30 provided no information on their age). Overall, 17.9% were in a romantic relationship with the target person, 4.5% were siblings, 1.5% were other family members, and 13.4% provided ratings for a close friend (others provided no information on their relationship status). They indicated having known the target person for 13.9 years on average (SD = 11.9.) with a range of 10 months to 60 years. Peer-raters were asked to rate on a 7-pont scale

(1 = "not at all," 7 = "excellent") how well they know the target person; more than 95% of the ratings were ≥5 and the lowest rating was 3 (M = 6.22, SD = 0.85).

6.2. Instruments

The participants in the self-ratings sample completed the standard form of the OLIW, while the knowledgeable others completed a peer-rating version, which was developed for this study (reliabilities self/peer: *Other-directed* α = .71/.73; *Lighthearted* α = .72/.78; *Intellectual* α = .71/.73; *Whimsical* α = .74/.81). They also completed the SMAP (Proyer, 2012b) in a self- and peer-rating version (α = .88/.87).

6.3. Procedure

Data were collected online (using SurveyMonkey), advertised as a study on playfulness and personality. Participants were asked to invite a knowledgeable person to complete the peer-ratings. They were offered a feedback on the self-ratings (i.e., on playfulness and a variety of personality trait measures). Peer-raters were assured that their ratings would not be shared with the target person.

6.4. Data analysis

The convergence of the self-ratings and the ratings by knowledgeable others was tested with Pearson correlations.

7. Results

Table 7 shows that the correlation coefficients for the homologous scales were in the expected range. There were some notable associations outside the main axis. For example, self-rated *Lighthearted* PF demonstrated a robust positive relationship with *Intellectual* PF. Self- and peer-rated SMAP scores were also robustly associated (27% overlapping variance). There was good convergence between the self-ratings in the OLIW and the peer-rated SMAP (numerically strongest for *Other-directed* PF; 13%).

Table 7

8. Discussion

The expectations for the overlap between self- and peer-ratings in the OLIW were met (coefficients were .44–.57) and if averaged across the four scales (mean = .49) this is about the range Angleitner et al. (1986) reported for *one* peer rating for the *Need for Play*-scale (i.e., .44 across five samples). Taking the reliability of the measures into account, it would be unlikely that the convergence reaches unity. The numerically largest overlap was found for *Whimsical* PF, which may be comparatively easy to observe in everyday situations (e.g., when being expressed in preferences for odd or grotesque objects and/or contents).

A *limitation* of the study is having only *one* peer-rating. A larger sample size would allow computing separate analyses depending on the type of acquaintance. One might argue that specific types of playfulness (e.g., *Other-directed* PF) are differently expressed when being with a specific person (e.g., ones romantic partner vs. colleagues at work). Thus, the type of acquaintance may have an impact.

9. Study 3

9.1. Introduction

Study 3 tests the association of the OLIW with actual playful behavior (averaged across 14 days). In a similar study, Wu and Clark (2003) tested the relation of trait *Aggression*, *Exhibitionism*, and *Impulsivity* and daily reported behavior (using a newly developed behavior record) in 197 US undergraduate students. In short, they found correlations between .34 (BPAQ *Hostility*) and .53 (BPAQ Total score) for their trait measures of *Aggression* and the respective aggregated behavioral ratings. They were between .46 (SNAP *Exhibitionism*) and .55 (NPI *Exhibitionism*) for the two *Exhibitionism* scales, and for the *Impulsivity* measures, they were between .17 (BIS-11, *Hostility*) and .51 (SNAP *Impulsivity*). Overall, there was a robust association between the trait measures and the aggregated behavior ratings.

The present study aims at (a) replicating Wu and Clark's (2003) findings, but more importantly, (b) extending the study by including ratings for playfulness. The trait measures can be used for a further examination of the convergent and discriminant validity. The study of the relationship between *Aggression* and playfulness is of particular interest in light of Chick's (2001) signal theory of adult playfulness (PF as a sign of nonaggressiveness and fecundity). Hence, it was expected that PF is negatively associated with trait measures of *Aggression*—with a potential exception for *Whimsical* PF, which may be associated with the (playfully intended) breaking of rules, or overstepping boundaries. This should not be reflected in *Hostility* towards others, but in "taking risks" when interacting with others (e.g., joking or commenting on others). In Wu and Clark (2006), the items "drew attention to myself," "showed off in the company of others," and "enjoyed being the topic of conversation" demonstrated particularly high convergence with trait measures of *Exhibitionism*. Given that earlier conceptualizations of playfulness incorporate *Expressive* components (Glynn and Webster 1992) that could also be retrieved in psycho-linguistic accounts (Proyer 2012, 2014), it was decided to test the OLIW against such behaviors in extreme variants (i.e., *Exhibitionism*). Low to medium size associations were expected for the relationship with *Exhibitionism*; especially, for the more overt types of PF (*Other-directed*, *Whimsical*). There is also earlier work in which playfulness is associated with *Impulsiveness* (e.g., Barnett, 2007; Glynn and Webster 1992; Proyer, 2012) and, therefore, associations with this trait were of interest, too. It was expected that there would be low to moderate associations of the OLIW-scales with *Impulsiveness*—with the exception of *Lighthearted* PF. Not liking to plan ahead, but rather enjoying improvising if necessary, and a certain level of restlessness were expected to be part of what constitutes *Lighthearted* PF.

Marti and Proyer (2015) have developed a rating scheme for adult playfulness that participants in this study completed along with the OLIW and three other measures of adult PF. It

was expected that all trait scales would be positively associated with the behavior ratings. Convergent validity of the OLIW is supported by good convergence with the playful behaviors and low convergence with the other behavior ratings.

10. Materials and methods

10.1. Participants

A total of 295 students (mostly psychology undergraduates) entered the study. Of these, n = 276 (45 men, 231 women) completed 10 or more daily measures and were considered for the further analyses. Their mean age was 22.2 years (SD = 4.07; 18 to 46 years).

10.2. Instruments

As in the other studies, the *OLIW* (*Other-directed*: α = .70; *Lighthearted*: α = .72, *Intellectual*: α = .61; *Whimsical*: α = .74), the *Short Measure of Adult Playfulness* (SMAP; Proyer, 2012; α = .85), and the *Playfulness Scale for Young Adults* (PSYA; Barnett, 2007; *Gregarious*: α = .71; *Uninhibited*: α = .71; *Comedic*: α = .68; *Dynamic*: α = .62) were used.

The *Need for Play* scale of the *Personality Research Form* (Jackson, 1984; German: Stumpf et al., 1985; high scores indicate doing many things "just for *Fun*," or spending a good deal of time participating in games, sports, social activities, and other amusements; etc.). It consists of 16 items (e.g., "People consider me a serious, reserved person", reversely scored). Answers are given in a "true"/"false" answer format (α = .74). Participants also competed the following scales: Need for *Aggression* (enjoying combat and argument, being easily annoyed; α = .60), *Impulsivity* (acting without deliberation, giving vent readily to feelings and wishes; α = .67), and *Exhibitionism* (wanting to be the center of attention, enjoying having an audience; α = .77).

The *Buss–Perry Aggression Questionnaire* (BPAQ; Buss and Perry, 1992; German: Amelang and Bartussek, 1997) consists of 29 items and utilizes a 5-point answer format (1 = "*extremely uncharacteristic of me*," 5 = "extremely characteristic of me"). It is frequently used in research, has

demonstrated good reliabilities, and the validity is widely supported. Internal consistencies were .86 (total score), .80 (Physical *Aggression*), .67 (Verbal *Aggression*), .80 (Anger), and .78 (*Hostility*).

The *Exhibitionism* scale of the *Narcissistic Personality Inventory* (NPI; Raskin and Hall, 1979) consists of 7 items in a "*true*"—"*false*" answer format (α = .60 in this sample). The German version (Schütz et al., 2004) demonstrates comparable properties to the original and is well established.

The *Barratt Impulsiveness Scale-Version 11* (BIS-11; Patton et al., 1995) consists of 30-items; Spinella (2007) developed a 15-item short form that has the same factor structure as the original version (German: Meule et al., 2011). They provide support for satisfactory reliabilities, and validity (factorial and convergent). It utilizes a 4-point answer format from 1 = "rarely/never" to 4 = "always/always" and comprises a total score (α = .77 in this sample), and scores for *Attentional* (α = .64), *Motor* (α = .77), and *Nonplanning Impulsiveness* (α = .79).

Wu and Clark's (2003) *behavior records* for *Aggression* (18 items), *Exhibitionism* (17), and *Impulsivity* (20) were used; the authors state: "Each item of this instrument consists of a short phrase that describes a particular behavior. Participants were instructed to indicate whether or not they performed each behavior for a given day. Items for the instrument were written and selected explicitly to target daily behaviors" (p. 238). Participants have to read each statement each evening (before going to sleep) for 14 consecutive days and indicate whether they have pursued this activity or not. Marti and Proyer (2015) derived 22 ratings for playful behavior that were also administered. Hence, participants in this study completed daily ratings for 77 behaviors; item samples are given in the results section. All items were presented in a random order.

11. Procedure

Wu and Clark's (2003) rating forms were translated to German in a translation-back-translation approach. As Wu and Clark worked with students, the items seemed appropriate for use with students in a German-speaking university, taking regional specificities into account.

Proyer and Marti (2015) developed an initial list of 60 playful behaviors that could be pursued on a daily basis. The behaviors were mainly derived from a literature review[2] and existing databases (Proyer, 2012a, 2014a; Proyer & Jehle, 2013). This list was given to 170 undergraduate psychology students (148 women; $M = 23.9$, $SD = 6.6$) in a pre-study. They were asked to indicate whether they had pursued the respective activities in the past 24 hours and completed Wu and Clark's (2003) *Exhibitionism*-ratings to avoid the occurrence of answer tendencies by using too many similar items. Those behaviors were selected that (a) demonstrated high loadings on the first unrotated principal component; (b) demonstrated sufficiently high occurrences (i.e., reflect potentially daily behaviors); and (c) covered different aspects of playfulness. This led to a selection of 22 playful behaviors that were used in the present study. The full list is available from the author.

12. Data analysis

The behavior records for *Play*, *Aggression*, *Exhibitionism*, and *Impulsivity* were subjected to a Principal Component Analysis. After these preliminary analyses, correlation coefficients were computed among the aggregated behavioral records.

13. Results

13.1. Analyses of the ratings scales

Aggregated scores were computed for the behavior ratings of Play, *Aggression*, *Exhibitionism*, and *Impulsivity*. Principal component analyses (PCA) were conducted for all ratings. A potent first factor emerged for the *Play* ratings (eigenvalue [EV] = 8.97, 40.77% explained variance); four factors exceeded unity (i.e., 1.62, 1.58, and 1.12). The scree-test suggested a one-

[2] The author is grateful to Dr. Barnett for sharing her "What You Like To Do in Your Free Time"-leisure activities measure (personal communication; April 24, 2014).

factorial solution. The loadings of the 22 items on the first unrotated principal component (FUPC) ranged between .50–.77 (median = .64). The findings were similar for *Aggression*; eigenvalue of the first factor = 5.03; EV = 27.96%; others exceeding unity were 1.58, 1.34, 1.21, and 1.12. The loadings on the FUPC ranged between .15–.72 (median = .51). One of the *Exhibitionism* ratings (i.e., "Tried not to be noticed/kept a low profile;" reverse coded) demonstrated a negative loading on the FUPC and was not further considered. The PCA revealed a strong first factor (eigenvalue = 4.74, EV = 29.60%; others ≥1.00 were 1.82, 1.48, and 1.11). The loadings on the FUPC ranged between .31–.74 (median = .56). Finally, findings by Wu and Clark (2003) for a two-factor solution for the *Impulsiveness*-ratings were replicated; the first five eigenvalues were 2.83 (EV = 14.16), 2.14 (EV = 10.72), 1.58, 1.34, and 1.25. Two factors were extracted and rotated to the Oblimin-criterion (delta = 0). An inspection of the loading matrices suggested that the two factors could be labeled in accordance to Wu and Clark; namely, *Failure to plan* (e.g., "made a list of things to do"), and *Carefree/Spontaneous* (e.g., "bought something on the spur of the moment"). The factor scores were uncorrelated (r = .08); four items yielded double loadings with differences ≤ .07 and a further one was .14, while the others were all ≥ .22. Given the low correlation of the factor scores, it was decided not to discard any of these items. Table 8 gives the correlations of the OLIW with the trait measures used in this study.

Table 8

Table 8 shows that the findings from Study 1 were well replicated (with some exceptions; e.g., differences between *Intellectual/Other-directed* and *Comedic* PF). The correlates of the *Need for Play*-scale were in the expected direction. The OLIW existed widely independently from *Aggression*; except for *Whimsical* PF (verbal, physical). *Hostility* was negatively correlated with all OLIW scales, but *Whimsical* PF existed unrelated from *Hostility*. There were positive associations of the OLIW with *Exhibitionism* (PRF), while coefficients were numerically lower for the *Exhibitionism* scale of

the NPI. As expected, *Impulsivity* was positively associated with playfulness. Numerically largest relations were found for *Lighthearted* PF (not planning ahead, physical *Impulsivity*). However, there was a differentiated pattern as, for example, *Intellectual* and *Whimsical* PF existed broadly unrelated to low planning/attention (BIS). Mainly the *Other-directed* and the *Lighthearted* PF demonstrated robust relations with *Impulsivity*. This is in line with findings for the PSYA (*Uninhibited* PF) and the SMAP. Overall, the findings were in the expected direction.

13.2. Convergence of the trait measures and the aggregated behavior records

Table 9 gives the correlation coefficients between the aggregated behavior records and the trait measures (plus the newly created ratings of *Impulsiveness*).

Table 9

All OLIW facets were positively correlated with the aggregated play behavior ratings (8—14% shared variance). At the level of single behaviors, *Other-directed* PF demonstrated robust associations with, for example, "having fooled around with others" (r = .37), or "having teased someone" (r = .26); *Lighthearted* playfulness was associated with "having skylarked" (r = .32), or "did something childish" (r = .26); *Intellectual* playfulness was associated with "played with a new idea" (r = .39), or "was imaginative" (r = .25); and *Whimsical* PF with "did something unconventional to break the routine" (r = .28), or "was amused by a strange/odd observation I made" (r = .23; all p<.001). As expected, *Lighthearted* PF demonstrated robust relations with *Impulsiveness* (Total score; mainly nonplanning). The relationships with *Aggression* and *Exhibitionism* were lower in size. The multiple squared correlation coefficient of the aggregated play ratings and the OLIW was R^2 = .26.

The SMAP and the *Need for Play*-scale were also positively correlated with the aggregated play ratings (14%—8% shared variance). Two out of the four PSYA scales were robustly positively correlated with the aggregated play ratings (*Uninhibited*/*Comedic*; i.e., 14/19%), while the other two

yielded lower associations (1.7%–3.6%). While the *Uninhibited* facet also demonstrated robust relations with *Impulsiveness* (nonplanning, carefree), *Comedic* PF was also positively associated with the *Exhibitionism* ratings. Overall, two out of the four PSYA scales demonstrated relations in the expected direction (R^2 = .25).

All trait measures of *Impulsiveness* were positively correlated with the aggregated Play ratings (shared variances between 7%–14%). The multiple squared correlation coefficient of the playful behaviors and the other behavior ratings (Total score for *Impulsiveness* only) was .35 indicating that they were overlapping, but not redundant. *Impulsiveness* (Total score) existed independently from *Aggression* and *Exhibitionism*, while the latter two were positively correlated. Wu and Clark's (2003) findings were widely replicated, but the correlation coefficients were numerically smaller for most of the associations. The trait measures for *Aggression* demonstrated the expected relationship, but its verbal variant only yielded low associations (shared variance = 2.6%). The trait measures for *Exhibitionism* were in the expected direction with only negligible correlations on the other behavior scores. The BIS-11 (Total score, Motor *Impulsiveness*) and the *Impulsivity* scale of the PRF were robustly positively correlated with the aggregated play behaviors.

14. Discussion

This study lends further support to the convergent and discriminant validity of the OLIW. Correlations with other trait measures of playfulness, *Aggression* and *Exhibitionism* were in the expected range. *Intellectual* and *Whimsical* playfulness (PF) demonstrated low relations with *Impulsiveness* (except for motor *Impulsiveness*). As expected, coefficients for *Lighthearted* and *Other-directed* PF were numerically higher. Especially, *Lighthearted* PF demonstrated a robust relationship with *low* planning intentions and motor *Impulsiveness*. These behavior tendencies (e.g., not liking to plan ahead) require compensatory activities such as improvisation that seem to be

particularly enjoyed by those high in *Lighthearted* PF. Nevertheless, it seems fruitful to study this association in more detail in the future.

To the best knowledge of the author, this is the first study to test the relationship of playfulness questionnaires to aggregated ratings of playful behavior. The OLIW demonstrated robust positive relations with the play behavior records (averaged across 14 days). As expected, the *Lighthearted* facet also demonstrated a positive relationship with *Impulsiveness* (mainly nonplanning). Overall, the findings lend further support to the validity of the OLIW. Findings for the SMAP and the *Need for Play* scale (PRF) were in the expected direction as well as for two out of the four scales of the *Playfulness Scale for Young Adults* (*Uninhibited*, *Comedic*).

Findings for the relationship of the behavior records for *Aggression*, *Exhibitionism*, and *Impulsivity* are widely in line with Wu and Clark (2003). However, the correlation coefficients tended to be numerically lower in size in this study. One finding needs further consideration: There was a robust positive relationship between the aggregated Play records and trait measures of *Impulsivity* (mainly the total score of the BIS-11, motoric *Impulsivity*, and the respective scale of the PRF). One might argue that the *Impulsiveness* measures also cover a certain degree of play behaviors. Of course, it needs to be mentioned that this is the first study in which the *play behavior* record has been used. Therefore, one might also argue that the play ratings were biased towards *Impulsiveness* and that the correlation coefficients reflect this bias in the development of the rating list.

One limitation of this study is that there is limited experience with the play record and that its validity needs further testing (see Proyer and Marti, 2015). Findings are based on a student sample with more females than males and the generalizability of the findings is limited. Of course, the ratings on the actual play behavior were retrospective (provided in the evening) and it needs to be emphasized that they were also based on the self-reports of the participants and that the data are not from direct observations of behavior.

15. General Discussion

The findings from the these three studies are encouraging and the use of the OLIW seems promising for future research purposes. The proposed structural model addresses problems identified in the existing literature. Other models also either consider (manifest) joy (e.g., Lieberman, 1977) as a part of playfulness or propose joy as the emotional response to play or playful behaviors. This limits emotional experiences associated with playfulness to one specific type of positive emotion while disregarding others. Restricting adult playfulness to *joy* seems too narrow for advancing the field further and it is argued that it may also be associated with other types of positive emotions (e.g., interest, love, or contentment).

The OLIW allows for the exploration of hitherto less well studied areas; for example, the field of romantic relationships. Chick (2001) and Chick and colleagues (2012) argue that adult playfulness is a desired personality trait in potential partners for long-term relationships. Lay people can provide examples of using playfulness in their romantic relationships (e.g., flirting, playful teasing, encouraging or comforting the partner; Proyer, 2014b). Especially, *Other-directed* PF should be studied as a contributor to relationship satisfaction/quality, but also indicators such as the duration of the relationship (cf. Proyer, 2014d). Of course, PF may also play a role in other forms of social interactions (e.g., at work, in friendships, sport teams, or other communities). The study of *Lighthearted* PF may focus on resilience and coping strategies. The latter has already received support in the literature (e.g., Guitard et al., 2005; Proyer, 2014b; Qian and Yarnal, 2011; Staempfli, 2007). One might argue that, especially, *Lighthearted* PF facilitates coping with personal and environmental stressors. It needs mentioning that *Lighthearted* PF may also be associated with *negative* consequences such as a greater inclination towards risky or addictive behaviors. Thus, the study of adult PF may also be extended towards at least potentially harmful behaviors. More research seems warranted for the *Intellectual* types of PF. For example, its role in innovation at work, science,

design, in the arts and aesthetics, or in its relationship with a need for cognition, or in problem solving (e.g., Berlyne, 1974; Bruner, 1972; Yu et al., 2007)—to name but a few. Finally, there are also other research directions for *Whimsical* PF. Those high in this type of PF should be good observers of their environment and should be able to transform these observations into entertaining experiences—for themselves, but also for others. Their preference for unusual activities, objects, or persons may be reflected in special aesthetic preferences, which, in turn, could be expressed in artistic or other types of behaviors. Of course, there are also other potential fields of application (e.g., clinical psychology and psychiatry, sport psychology, motivational psychology, or health psychology) which may be worth pursuing more in the future.

This brief overview could only highlight a few of the potential areas of interest for future research and, of course, there are also many other areas where this line of research would be of interest. The present studies show that the OLIW is a promising instrument for the study of adult playfulness and can, hopefully, contribute to the advancement of the field.

16. References

Barnett, L.A. (2007). The nature of playfulness in young adults. *Pers. Indiv. Diff.* 43, 949–958. doi: 10.1016/j.paid.2007.02.018.

Barnett, L.A. (2011). How do playful people play? Gendered and racial leisure perspectives, motives and preferences of college students. *Leisure Sci.* 33, 382–401. doi: 10.1080/01490400.2011.606777

Berlyne, D.E. (Ed.). (1974). *Studies in the new experimental aesthetics: Steps toward an objective psychology of aesthetic appreciation*. Oxford, UK: Hemisphere.

Bruner, J. (1972). The nature and uses of immaturity. *Am. Psychol.* 27, 687-708.

Buss, A.H., and Perry, M. (1992). The *Aggression* questionnaire. *J. Pers. Soc. Psychol.* 63, 452–459.

Campbell, D.T., and Fiske, D.W. (1959). Convergent and discriminant validation by the Multitrait-Multimethod Matrix. *Psychol. Bull.* 56, 81–105. doi: 10.1037/h0046016

Cattell, R.B. (1950). *Personality*. New York, NY: McGraw Hill.

Chick, G. (2001). What is play for? Sexual selection and the evolution of play. *Play Cult. Stud.* 3, 3–25.

Chick, G., Yarnal, C., and Purrington, A. (2012). Play and mate preference: Testing the signal theory of adult playfulness. *Am. J. Play* 4, 407-440.

Connolly, J.J., Kavanagh, E.J., and Viswesvaran, C. (2007). The convergent validity between self and observer ratings of personality: A meta-analytic review. *Int. J. Select. Assess.* 15, 110–117. doi: 10.1111/j.1468-2389.2007.00371.x

Csikszentmihalyi, M. (1975). Play and intrinsic rewards. *J. Humanist. Psychol.* 15, 41-63.

Fekken, C. G., Holden, R.R., Jackson, D. N., and Guthrie, G.M. (1987). An evaluation of the validity of the Personality Research Form with Filipino University students. *Int. J. Psychol.* 22, 399-407. doi: 10.1080/00207598708246781

Glynn, M.A., and Webster, J. (1992). The Adult Playfulness Scale: An initial assessment. *Psychol. Rep*. 71, 83-103. doi: 10.2466/PR0.71.5.83-103

Glynn, M.A., and Webster, J. (1993). Refining the nomological net of the Adult Playfulness Scale: Personality, motivational, and attitudinal correlates for highly intelligent adults. *Psychol. Rep*. 72, 1023-1026.

Goldberg, L.R. (1990). An alternative "description of personality": The Big-Five factor structure. *J Pers. Soc. Psychol*. 59, 1216-1229. doi: 10.1037//0022-3514.59.6.1216

Goldberg, L.R. (2006). Doing it all bass-ackwards: The development of hierarchical factor structures from the top down. *J. Res. Pers*. 40, 347-358. doi: 10.1016/j.jrp.2006.01.001

Goldberg, L.R., and Rosolack, T.K. (1994). The Big Five factor structure as an integrative framework: An empirical comparison with Eysenck's P-E-N model. In C. F. Halverson Jr., G. A. Kohnstamm, and R. P. Martin (Eds.), *The developing structure of temperament and personality from infancy to adulthood* (pp. 7-36). Hillsdale, NJ: Lawrence Erlbaum.

Guitard, P., Ferland, F., and Dutil, É. (2005). Toward a better understanding of playfulness in adults. *Occup. Ther. J. Res*. 25, 9-22.

Horn, J.L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika* 30, 179–185. doi: 10.1007/BF02289447

Hu, L., and Bentler, P.M. (1999). Cut off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Modeling* 6, 1–55. doi: 10.1080/10705519909540118

Jackson, D.N. (1984). *Personality Research Form*. Goshen, NY: Research Psychologists Press.

Lieberman, N.J. (1977). *Playfulness: Its relationship to imagination and creativity*. New York, NY: Academic Press.

Magnuson, C.D., and Barnett, L.A. (2013). The playful advantage: How playfulness enhances coping with stress. *Leisure Sciences, 35*, 129-144. doi: 10.1080/01490400.2013.761905

Marti, N., and Proyer, R.T. (2015). *Rating schedule for daily playful activities* (unpublished research instrument). Zurich, University of Zurich.

Meule, A., Vögele, C., and Kübler, A. (2011). Psychometrische Evaluation der deutschen Barratt *Impulsiveness* Scale–Kurzversion (BIS-15) [Psychometric evaluation of the German Barratt *Impulsiveness* Scale–Short Version (BIS-15)]. *Diagnostica* 57, 126-133. doi: 10.1026/0012-1924/a000042

Murray, H.A. (1938). *Explorations in personality*. New York, NY: OUP.

Muthén, B.O., and Muthén, L.K. (2007). *Mplus. User manual*. Los Angeles, CA: Muthén and Muthén.

Norman, W.T. (1967). *2,800 personality trait descriptors: Normative operating characteristics for a university population*. Ann Arbor: Department of Psychology, University of Michigan.

Osgood, C.E. (1962). Studies of the generality of affective meaning systems. *Am. Psychol.* 17, 10–28. doi: 10.1037/h0045146

Ostendorf, F. (1990). *Sprache und Persönlichkeitsstruktur. Zur Validität des Fünf-Faktoren-Modells der Persönlichkeit* [Language and personality. On the validity of the five-factor model of personality]. Regensburg, Germany: Roderer.

Ostendorf, F., Angleitner, A. and Ruch, W. (1986). *Die Multitrait-Multimethod Analyse. Konvergente und diskriminante Validität der Personality Research Form* [The Multitrait-Multimethod analysis: Convergent and discriminant validity of the Personality Research Form]. Göttingen, Germany: Hogrefe.

Patton, J.H., Stanford, M.S., and Barratt, E.S. (1995). Factor structure of the Barratt *Impulsiveness* Scale. *J. Clin. Psychol.* 51, 768–774.

Peterson, C., and Seligman, M.E.P. (2004). *Character strengths and virtues: A handbook and classification*. Washington, DC: APA.

Proyer, R.T. (2011). Being playful and smart? The relations of adult playfulness with psychometric and self-estimated intelligence and academic performance. *Learn. Indiv. Differ*. 21, 463-467. doi: 10.1016/j.lindif.2011.02.003

Proyer, R.T. (2012a). A psycho-linguistic study on adult playfulness: Its hierarchical structure and theoretical considerations. *J. Adult Dev*. 12, 141-149. doi: 10.1007/s10804-012-9141-7

Proyer, R.T. (2012b). Development and initial assessment of a short measure for adult playfulness: The SMAP. *Pers. Indiv. Diff*. 53, 989-994. doi: 10.1016/j.paid.2012.07.018

Proyer, R.T. (2012c). Examining playfulness in adults: Testing its correlates with personality, positive psychological *Fun*ctioning, goal aspirations, and multi-methodically assessed ingenuity. *Psychol. Test Assess. Mod*. 54, 103-127.

Proyer, R.T. (2014a). A psycho-linguistic approach for studying adult playfulness: A replication and extension toward relations with humor. *J. Psychol*. 148, 717-735. doi: 10.1080/00223980.2013.826165

Proyer, R.T. (2014b). Perceived *Fun*ctions of playfulness in adults: Does it mobilize you at work, rest, and when being with others? *Eur. Rev. Appl. Psychol*. 64, 241-250. doi: 10.1016/j.erap.2014.06.001

Proyer, R.T. (2014c). Playfulness over the lifespan and its relation to happiness: Results from an online survey. *Z. Gerontol*. 47, 508-512. doi: 10.1007/s00391-013-0539-z

Proyer, R.T. (2014d). To love and play: Testing the association of adult playfulness with the relationship personality and relationship satisfaction. *Curr. Psychol*. 33, 501-514. doi: 10.1007/s12144-014-9225-6

Proyer, R.T. (2015). *Playfulness as a personality trait in adults: Its structure, definition, and measurement*. Unpublished habilitation thesis, Zurich, University of Zurich.

Proyer, R.T., and Jehle, N. (2013). The basic components of adult playfulness and their relation with personality: The hierarchical factor structure of seventeen instruments. *Pers. Indiv. Diff.* 55, 811-816. doi: 10.1016/j.paid.2013.07.010

Proyer, R.T., and Rodden, F.A. (2013). Is the homo ludens cheerful and serious at the same time? An empirical study of Hugo Rahner's notion of Ernstheiterkeit. *Arch. Psychol. Rel.* 35, 213-231. doi: 10.1163/15736121-12341262

Proyer, R.T., and Ruch, W. (2011). The virtuousness of adult playfulness: The relation of playfulness with strengths of character. *Psychol. Well-Being* 1:4. doi: 10.1186/2211-1522-1-4

Proyer, R.T., Wagner, L. (2015). Playfulness in adults revisited: The signal theory in German speakers. *Am. J. Play* 7, 201-227.

Qian, X.L., and Yarnal, C. (2011). The role of playfulness in the leisure stress-coping process among emerging adults: An SEM analysis. *Leisure* 35, 191-209. doi: 10.1080/1492

Raskin, R., and Hall, C. (1979). A narcissistic personality inventory. *Psychol. Rep.* 45, 590.

Ruch, W., and Heintz, S. (2015). Humour styles, personality and psychological well-being: What's humour got to do with it? *Eur. J. Humour Res.* 1(4), 1-24.

Ruch, W., Proyer, R.T., Harzer, C., Park, N., Peterson, C., and Seligman, M.E.P. (2010). Values in Action Inventory of Strengths (VIA-IS): Adaptation and validation of the German version and the development of a peer-rating form. *J. Indiv. Diff.* 31, 138-149. doi: 10.1027/1614-0001/a000022

Ruch, W., Weber, M., Park, N., and Peterson, C. (2014). Character strengths in children and adolescents: Reliability and initial validity of the German Values in Action Inventory of Strengths for Youth (German VIA-Youth). *Eur. J. Psychol. Assess.* 30, 57-64. doi: 10.1027/1015-5759/a000169

Schütz, A., Marcus, B., and Sellin, I. (2004). Die Messung von Narzissmus als Persönlichkeitskonstrukt: Psychometrische Eigenschaften einer Lang- und einer Kurzform des Deutschen NPI (Narcissistic Personality Inventory) [Measuring narcissism as a personality construct: Psychometric properties of a long and a short version of the German Narcissistic Personality Inventory]. *Diagnostica 50*, 202-218. doi: 10.1026/0012-1924.50.4.202

Shen, X.S., Chick, G. and Zinn, H. (2014). Playfulness in adulthood as a personality trait: A reconceptualization and a new measurement. *J. Leisure Res*. 46, 58-83.

Smith, K.C.P., and Apter, M.J. (1975). *A theory of psychological reversals*. Chippenham, UK: Picton Press.

Spinella, M. (2007). Normative data and a short form of the Barratt *Impulsiveness* Scale. *Int. J. Neurosc*. 117, 359-368. doi: 10.1080/00207450600588881

Staempfli, M.B. (2007). Adolescent playfulness, stress perception, coping and well being. *J. Leisure Res*. 3, 393-412.

Stumpf, H., Angleitner, A., Wieck, T., Jackson, D.N., and Beloch-Till, H. (1985). *Deutsche personality research form* [German personality research form]. Göttingen, Germany: Hogrefe.

Welsh, G.S. (1959). *Welsh Figure Preference Test: Including the Barron-Welsh Art Scale*. Palo Alto, CA: Consulting Psychologists Press

Wu, K.D., and Clark, L.A. (2003). Relations between personality traits and self-reports of daily behavior. *J. Res. Pers*. 37, 231–256. doi: 10.1016/S0092-6566(02)00539-1

Yarnal, C., and Qian, X. (2011). Older-Adult Playfulness: An innovative construct and measurement for healthy aging research. *Am. J. Play* 4, 52-79.

Yu, P., Wu, J.-J., Chen, I., and Lin, Y.-T. (2007). Is playfulness a benefit to work? Empirical evidence of professionals in Taiwan. *Int. J. Technol. Meas*. 39, 412-429. doi: 10.1504/IJTM.2007.013503

Yarnal, C., and Qian, X. (2011). Older-Adult Playfulness: An innovative construct and measurement for healthy aging research. *Am. J. Play* 4, 52-79.

Table 1. Factor Loadings (OBLIMIN rotation), Distribution Statistics, and Correlations with age and Gender for the OLIW-items (Sample 1).

Item (abbreviated)	I	II	III	IV	M	SD	Sk	K	Age	Gender
Discussion as play with ideas (1)	.12	-.17	-.03	**.43**	4.91	1.45	-0.69	-0.19	.21**	-.05
Not liking tasks that require trials for a solution (R) (5)	-.15	-.05	.00	**.49**	4.62	1.64	-0.36	-0.72	-.04	.01
Playful approach for new ideas (9)	.19	-.21	.13	**.51**	4.61	1.34	-0.38	-0.13	.20**	-.05
Preferring fixed schemes for problem solving (R) (13)	.19	-.18	.04	**.47**	4.29	1.47	-0.14	-0.65	-.16	-.06
Playful approach in learning new contents (17)	.20	-.16	.07	**.51**	4.25	1.49	-0.23	-0.58	.23**	.03
Playfulness distracts from work (R) (21)	.10	-.05	.07	**.54**	4.80	1.49	-0.43	-0.61	.22	.00
Always having ideas about what to do (25)	-.06	.09	-.07	**.63**	5.57	1.50	-1.02	0.31	.35**	-.06
Planning ahead (R) (2)	**.67**	-.09	-.02	-.17	4.39	1.58	-0.08	-0.85	.00	.00
Not worrying about most things (6)	**.68**	.09	.02	.22	4.29	1.61	-0.25	-0.90	.14**	-.14**
Being lighthearted (10)	**.55**	.19	.19	.12	3.74	1.57	0.01	-0.90	.03	-.10*
Liking to improvise (14)	**.58**	.10	.09	.25	5.56	1.09	-0.80	1.03	.15**	-.07

"Wait and see" (18)	**.68**	.06	-.01	.15	5.19	1.37	-0.82	0.35	.12**	.04
Not thinking about consequences (22)	**.63**	-.16	.03	-.15	4.07	1.71	-0.01	-1.15	.17**	.00
Preferring a "chaotic" approach to work (26)	**.69**	-.23	-.13	-.09	4.40	1.84	-0.23	-1.09	.11	.00
Using playfulness for cheering others up (3)	.12	-.13	**.62**	.07	5.53	1.20	-0.90	0.70	-.04	-.03
Playing pranks on others (7)	.04	-.07	**.59**	-.05	4.88	1.61	-0.67	-0.39	-.10*	-.11**
Fooling around with friends (11)	.08	.00	**.69**	-.20	5.72	1.39	-1.21	0.98	-.27**	.09*
Feeling distracted when colleagues at work play around (R) (15)	.14	.02	**.49**	.11	5.49	1.38	-0.80	0.07	.07	-.14**
Liking to re-enact things that one experienced (19)	-.15	-.14	**.56**	-.06	4.34	1.76	-0.27	-0.91	-.13**	.12**
Expressing ones feelings for a partner playfully (23)	.09	.00	**.57**	.10	5.12	1.43	-0.69	0.09	.04	.05
Not liking parlor games or playful interactions (R) (27)	-.15	.11	**.39**	.05	5.98	1.45	-1.60	1.85	.21**	-.17**
Swimming against the stream (4)	-.06	**-.79**	-.08	.05	4.86	1.36	-0.30	-0.47	.13**	-.03
Reputation for being flamboyant (8)	.05	**-.73**	.08	-.05	4.58	1.54	-0.54	-0.32	.08	-.06
Not liking being pigeonholed (12)	.22	**-.59**	.14	-.04	4.96	1.40	-0.50	-0.30	.19**	.04
Having one's own style (16)	-.02	**-.71**	-.04	.07	5.38	1.25	-0.74	0.32	.11**	.00

Liking to be around unusual people (20)	.02	**-.64**	.11	.12	5.28	1.30	-0.77	0.39	.08*	.05
Having an unusual habit (24)	-.10	**-.56**	.01	.06	4.09	1.85	-0.06	-1.22	.02	-.14**
Game needs to allow for the unexpected to occur (28)	.01	**-.42**	.01	.04	3.56	1.60	0.15	-0.89	.04	-.13

Note. *N* = 564-628; I-IV = loadings on the four OBLIMIN-rotated factors; I = Lighthearted, II = Whimsical, III = Other-directed, and IV = Intellectual; M = mean, SD = standard deviation; Sk = Skewness; K = Kurtosis; Age = correlation with age; sex = correlations with gender (1 = male, 2 = female). R = reverse coded item.

*$p<.05$; **$p<.01$.

Table 2. Reliability, Distribution Statistics, and Correlates with Age and Gender in the two Samples.

	Sample 1				Sample 2			
	OTD	LIG	INT	WHI	OTD	LIG	INT	WHI
Alpha	.66	.79	.68	.78	.73	.76	.69	.78
CITC L	.17	.45	.25	.30	.18	.41	.16	.21
CITC H	.48	.60	.55	.63	.58	.58	.57	.63
Mean	5.29	4.52	4.72	4.71	4.96	4.40	4.59	4.67
SD	0.86	1.04	0.90	0.98	0.91	0.96	0.84	0.94
SK	-0.68	-0.36	-0.20	-0.26	-0.52	-0.19	0.04	-0.37
Kurtosis	0.65	-0.03	0.02	-0.19	0.33	-0.13	-0.21	0.17
Age	-.19**	.16**	.33**	.11**	-.23**	.06*	.12**	.03
Sex	.11**	-.04	.01	-.06	.02	-.06*	-.02	.00

Note. N = 597-628 (Sample 1), N = 1,168 (Sample 2). OTD = Other-directed; LIG = Lighthearted; INT = Intellectual; WHI = Whimsical; Alpha = Cronbach-alpha (internal consistency); CITC L/H = lowest/highest corrected item-total correlation; SK = Skewness; Age = Correlation with Age (Pearson); Gender = Correlation with Sex (1 = men; 2 = women; Spearman).

*p<.05; **p<.01.

Table 3. Convergent Validity of the OLIW: Pearson Correlation Coefficients With Three Playfulness Questionnaires

	Intellectual	Lighthearted	Other-directed	Whimsical
SMAP	.50**	.49**	.64**	.45**
PSYA				
Gregarious	.31**	.31**	.38**	.12
Uninhibited	.30**	.48**	.37**	.41**
Comedic	.30**	.34**	.70**	.27**
Dynamic	.34**	.25**	.30**	.16*
APS				
Spontaneous	.41**	.67**	.48**	.43**
Expressive	.26**	.41**	.47**	.31**
Fun	.39**	.40**	.52**	.18**
Creative	.44**	.30**	.36**	.42**
Silly	.27**	.44**	.48**	.33**

Note. $N = 462$. SMAP = Short Measure of Adult Playfulness; PSYA = Playfulness Scale for Young Adults; APS = Adult Playfulness Scale.

*$p<.05$; **$p<.01$.

Table 4. Correlations (Controlled for Age and Gender) Between Facets of the OLIW, SMAP, PSYA, PSA, and the Big-Five Personality Traits.

	Extraversion	Agreeableness	Conscientiousness	ES	Culture
OLIW					
Other-directed	.42**	.11*	-.07	.18**	.30**
Lighthearted	.25**	.09	-.41**	.34**	.27**
Intellectual	.20**	.10*	-.08	.30**	.41**
Whimsical	.12**	-.05	-.17**	.08	.50**
R^2	.19	.03	.18	.15	.30
SMAP	.25**	.08	-.18**	.12*	.41**
APS					
Spontaneous	.39**	-.04	-.44**	.19**	.39**
Expressive	.56**	-.13**	-.26**	-.05	.33**
Fun	.53**	.19**	-.04	.33**	.41**
Creative	.38**	.22**	.03	.31**	.74**
Silly	.24**	-.12*	-.39**	-.07	.26**
R^2	.41	.17	.29	.31	.55
PSYA					
Gregarious	.71**	.33**	.11	.50**	.28**
Uninhibited	.26**	-.07	-.24**	.09	.31**
Comedic	.42**	.14*	-.11	.17**	.30**
Dynamic	.41**	.09	.21**	.39**	.30**
R^2	.54	.14	.16	.24	.18

Note. N = 459. ES = Emotional Stability; SMAP = Short Measure of Adult Playfulness; APS = Adult Playfulness Scale; PSYA = Playfulness Scale for Young Adults. R^2 = Multiple squared correlation coefficient (overlap of the big five personality traits tested separately for the playfulness measures).

**p<.01; *p<.05.

Table 5. Correlations (Controlled for Age and Gender) Between Facets of the OLIW, SMAP, PSA, and PSYA and the Preference Ratings for Complex vs. Simple Figures.

	Liking WFPT		Disliking WFPT	
	Complex	Simple	Complex	Simple
OLIW				
Other-directed	.16**	.08	-.18**	-.09*
Lighthearted	.12**	.01	-.14**	.01
Intellectual	.24**	.05	-.27**	-.08
Whimsical	.17**	.02	-.16**	-.03
R^2	.08	.01	.08	.01
SMAP	.20**	.09	-.18**	-.07
APS				
Spontaneous	.12*	-.02	-.12*	.01
Expressive	.08	.05	.09	-.04
Fun	.13*	.08	-.14**	-.08
Creative	.21**	.07	-.19**	-.05
Silly	.10*	-.02	-.11*	-.02
R^2	.05	.02	.03	.01
PSYA				
Gregarious	.11*	.05	-.09*	-.01
Uninhibited	.09	-.04	-.06	.08
Comedic	.09	.05	-.11*	-.07
Dynamic	.08	.03	-.06	.04
R^2	.02	.01	.01	.01

Note. N = 453-532. WFPT = Welsh Figure Preference Test; SMAP = Short Measure of Adult Playfulness; APS = Adult Playfulness Scale; PSYA = Playfulness Scale for Young Adults. R^2 = Multiple squared correlation coefficient (prediction of playfulness onto the [dis-]liking of the figures from the WFPT).**p<.01; *p<.05.

Table 6. Test-retest Correlation for the OLIW and Internal Consistency at Baseline (Three Items per Scale).

	Alpha	1 Week	2 Weeks	1 Month	3 Months
Other-directed	.56	.77**	.79**	.78**	.74**
Lighthearted	.77	.80**	.81**	.82**	.77**
Intellectual	.75	.73**	.74**	.74**	.67**
Whimsical	.77	.87**	.85**	.84**	.84**

Note. N = 191-199. Alpha = Internal consistency (baseline).

*p<.05; **p<.01.

Table 7. Correlations of Self- and Peer-rated Playfulness Using the OLIW and the SMAP.

	Self-Ratings				
	OLIW				SMAP
Peer-ratings	OTD	LIG	INT	WHI	Total
OLIW					
OTD	.44*	.13*	.08	.04	.36**
LIG	.18**	.49**	.23**	.11	.24**
INT	.24**	.36**	.44**	.21**	.26**
WHI	.10	.25**	.24**	.57**	.19**
SMAP	.36**	.18**	.22**	.26**	.52**

Note. $N = 226$. SMAP = Short Measure of Adult Playfulness; OTD = Other-directed; LIG = Lighthearted; INT = Intellectual; WHI = Whimsical.

*$p<.05$; **$p<.01$.

Table 8. Convergent and Discriminant Validity of the OLIW: Correlations with Trait Measures for Adult Playfulness, *Aggression*, *Impulsiveness*, and *Exhibitionism* (Controlled for Age and Gender)

	OTD	LIG	INT	WHI	SMAP	PRF Play	GRE	UNI	COM	DYN
SMAP	.60**	.41**	.44**	.24**	--	.44**	.18**	.31**	.48**	.10
PRF PLAY	.52**	.46**	.28**	.14*		--	.29**	.39**	.45**	.10
PSYA							--			
GRE	.38**	.32**	.23**	.06				.20**	.39**	.36**
UNI	.31**	.51**	.27**	.52**				--	.35**	.24**
COM	.60**	.36**	.30**	.22**					--	.20**
DYN	.21**	.15*	.27**	.22**						--
PRF AGG	.09	-.05	-.08	.13*	.04	-.09	-.23**	.19**	.06	.04
BPAQ										
Total	-.02	-.09	-.11	.18**	.06	.01	-.39**	.15*	.02	-.13*
Physical	.10	.02	.03	.22**	.15*	-.12*	-.24**	.13*	.09	-.04
Verbal	.06	.12*	.09	.30**	.03	-.12*	-.06	.26**	.11	.07

Anger	.04	-.01	-.10	.11	.03	.04	-.21**	.19**	.06	-.05
Hostility	-.22**	-.29**	-.26**	-.04	-.06	.17**	-.46**	-.08	-.16**	-.25**
PRF EXH	.31**	.22**	.28**	.28**	.23**	.33**	.35**	.30**	.30**	.25**
NPI EXH	.19**	.13*	.12*	.19**	.16**	.26**	.21**	.29**	.20**	.15**
BIS-11(15)										
Total	.33**	.61**	.16*	.23**	.37**	.47**	.05	.58**	.26**	-.10
Non Plan	.20**	.51**	.14*	.11	.25**	.32**	.01	.35**	.08	-.18**
Motor	.40**	.63**	.23**	.32**	.37**	.45**	.21**	.69**	.37**	.12*
Attentional	.12*	.18**	-.03	.09	.21**	.27**	.14*	.25**	.14*	-.17**
PRF IMP	.33**	.53**	.18**	.29**	.30**	.40**	.11	.59**	.34**	.00

Note. N = 295. OTD = *Other-directed*, LIG = *Lighthearted*, INT = *Intellectual*, WHI = *Whimsical*; SMAP = Short Measure of Adult Playfulness; PRF = Personality Research Form; GRE = *Gregarious*, UNI = *Uninhibited*, COM = *Comedic*, DYN = *Dynamic*; BPAQ = Buss–Perry *Aggression* Questionnaire, Physical = Physical *Aggression*, Verbal = Verbal *Aggression*, A = Anger, H = *Hostility*; EXH = *Exhibitionism*; NPI = Narcissistic Personality Inventory; BIS-11(15) = Barratt *Impulsiveness* Scale-Version 11; PRF IMP = *Impulsivity*.

*p<.05; **p<.01.

Table 9. Correlation Coefficients Between Aggregated Behavior Ratings of Play, Aggression, Exhibitionism, Impulsiveness and Trait Measures (Controlled for Age and Gender)

	Play	Aggression	Exhibitionism	Impulsiveness	NP_I	CAR
OLIW						
Intellectual	.29**	.02	.04	.17**	.15*	.10
Lighthearted	.38**	.01	.09	.32**	.29**	.18**
Other-directed	.33**	.08	.13*	.20**	.15*	.16*
Whimsical	.36**	.15*	.13*	.12	.08	.16*
SMAP	.38**	.14*	.14*	.19**	.13*	.19**
PRF PLAY	.28**	.00	.08	.27**	.26**	.13*
PSYA						
Gregarious	.19**	-.13*	.05	.04	.04	.01
Uninhibited	.38**	.13*	.17**	.29**	.22**	.25**
Comedic	.44**	.18**	.27**	.14*	.08	.19**
Dynamic	.13*	-.06	.04	-.05	-.07	.00
BPAQ						
Total	.03	.43**	.12*	.00	-.09	.19**
Physical A	.07	.36**	.16*	.09*	.01	.10**
Verbal A	.13*	.16*	.08	.03	.02	.08
Anger	.05	.40**	.12*	.00	-.11	.20**
Hostility	-.12*	.25**	-.01	-.09	-.15*	.05
PRF AGG	-.04	.33**	.09	.02	.00	-.11
NPI EXH	.12*	-.10	.34**	.06	-.03	-.12*
PRF EXH	.17**	.02	.26**	.11	-.07	-.09
BIS-11						
Total	.27**	.09	.10	.42**	.31**	.33**
Nonplanning	.14*	-.05	-.01	.39**	.37**	.17**
Motor	.37**	.14*	.20**	.30**	.17**	.33**
Attention	.07	.12*	.04	.22**	.12*	.24**
PRF IMP	.27**	.13*	.14*	.38**	.27**	.30**

Note. $N = 276$; NP_I = Nonplanning Impulsiveness, CAR = Careless; SMAP = Short Measure of Adult Playfulness; PRF = Personality Research Form; PSYA = Playfulness Scale for Young Adults; BPAQ = Buss–Perry Aggression Questionnaire, Physical A = Physical Aggression, Verbal A = Verbal Aggression, A = Anger, H = Hostility; AGG = Aggression; NPI = Narcissistic Personality Inventory; EXH = Exhibitionism; BIS-11 = Barratt Impulsiveness Scale-Version 11; PRF IMP = Impulsivity.

*$p<.05$; **$p<.01$.